DOCUMENT RESUME

ED 162 139 CE 018 562

TITLE	Methods and Materials for Teaching Occupational Survival Skills. Using Creativity at Work.
INSTITUTION	Illinois Univ., Urbana. Dept. of Vocational and Technical Education.
SPONS AGENCY	Illinois State Office of Education, Springfield. Div. of Adult Vocational and Technical Education.
PUB DATE	78
NOTE	49p.; For related documents see CE 018 556-569
AVAILABLE FROM	Curriculum Publications Clearinghouse, Western Illinois University, 76B Horrabin Hall, Macomb, Illinois 61455 (entire fourteen-unit set, $15.00)
EDRS PRICE	MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS	Adult Education; *Career Education; Creative Ability; Creative Activities; *Creative Development; *Creativity; Human Relations; Imagination; *Job Skills; Learning Modules; Senior High Schools; *Work Attitudes

ABSTRACT

This occupational skills instructional module on using creativity at work is one of twelve making up a curriculum guide on the human aspects of working in organizations. The modules are designed for utilization at various educational levels ranging from high school to adult and continuing education, in either academic or vocational programs. This module is organized into seven sessions: (1) tuning in to creativity, (2) defining creativity, (3) applying creativity, (4) creativity self evaluation, (5) awareness and creativity, (6) brainstorming--a creative technique, and (7) creativity in work situations. Each session is arranged according to the following components: topic; objective; skills emphasized (a listing of specific skills, e.g., using imagination, adjusting to work situations); notes on the importance of the session topic; list of materials and equipment needed (a copy of each student worksheet, transparency and/or handout is included); activity (description of how to conduct activity); and follow-up (discussion questions or activities to assist students in summarizing or evaluating the session topic). Teacher resources including the titles, sources, and descriptions of books, articles, and audiovisual aids conclude the module. A 16-item multiple choice test for use with this module is available in document CE 018 569. CE 018 556 describes the twelve modules and their development. (JH)

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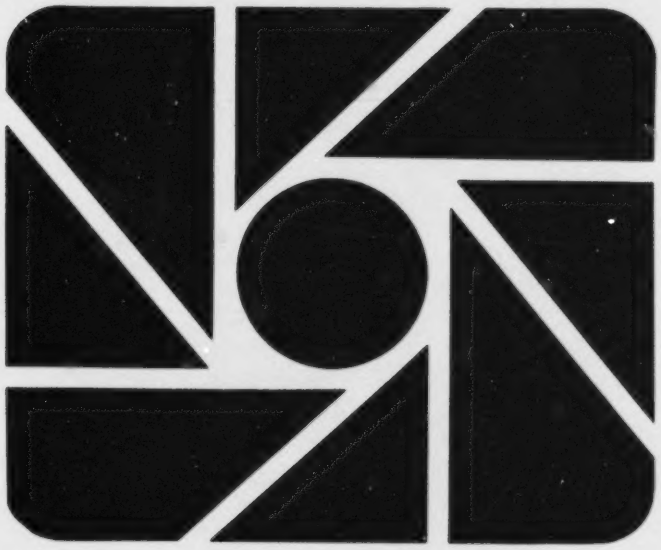
Methods And Materials For Teaching

Occupational Survival Skills



Using Creativity at Work

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USING CREATIVITY AT WORK

Methods and Materials for Teaching
Occupational Survival Skills

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1978

These curriculum materials have been developed and published under a contractual agreement between the Illinois Office of Education, Department of Adult, Vocational, and Technical Education, Research and Development, 100 North First Street, Springfield, Illinois 62777 and the Department of Vocational and Technical Education, University of Illinois at Urbana-Champaign

ACKNOWLEDGMENTS

The project staff wishes to express their gratitude to the many people who provided expertise, services, and support to the development of the curriculum modules. Special thanks is expressed to the students and teachers who provided feedback during the field testing stages of the project. This information was extremely useful in revising the modules.

Appreciation is expressed to Dr. Rupert N. Evans, Acting Chairman, Department of Vocational and Technical Education, University of Illinois, Urbana, for his encouragement, leadership, and guidance throughout the project. The project staff is also indebted to the staff of the Research and Development Section, Department of Adult, Vocational and Technical Education, Springfield, Illinois, for their support.

The research efforts of Sharon Lund O'Neil, Thomas Scanlan, Joyce Nies, and Kent Frison, conducted during the outset of the project, helped to provide the basis for the development of the curriculum modules. As contributing authors to the early versions of various modules, the project staff is grateful to Norma Turok, Glenda Huffman, Charles Jackson, and Christopher Kalangi.

For typewriting, proofreading, correcting, and reproduction of the modules throughout the project, special thanks is given to Anna McClintock, Evelyn Stewart, Ruthann Ryan, Colleen Nichols, Steve Hauersperger, Barbara Cain, and Terry McKenzie. Delmar Burgin, Betty Richards, and David Turner provided expert administrative assistance to the project.

Robert E. Nelson
Project Director

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The twelve Occupational Survival Skills Modules are not numbered. Instructors are encouraged to use Modules in any order that best fits their needs.

Using Creativity at Work

"Madame, I trim the hedge my way or not at all."

Module Objective:

Students will have the opportunity to become aware of and develop their creative potential for use in work situations.

Topic Outline:

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Using Creativity at Work: Overview

Most people can think of several occupations which require workers to use creativity--artist, musician, dancer, designer and scientist. However, the need for creativity is not limited to these occupations. Creative ideas are needed in any situation including

paid employment,
homemaking,
volunteer work, and
everyday life

--anywhere there are problems with unknown solutions.

Some people believe that they are not creative. They may overlook situations in which they have good ideas, or they may avoid sharing their ideas with others. By recognizing and sharing their ideas, people can begin to develop their creative ability.

Because people become accustomed to thinking in certain ways, they may have difficulty thinking of original ideas. People can develop their creative potential through learning and practice. Several techniques can be used to develop more creative thinking habits. Some of these techniques are:

increasing awareness,
brainstorming, and
changing existing ideas.

Increasing awareness means learning to pay attention to sights and sounds we ordinarily ignore. Most people are in the habit of blocking out certain sights and sounds in order to concentrate on one thing at a time. By paying attention to what we usually ignore, we can open our minds to new ways of thinking.

Brainstorming is a technique in which persons generate a large number of ideas. Unusual ideas are encouraged. Ideas are never judged or criticized during brainstorming. Participants may combine and improve ideas during brainstorming.

New and original ideas can be developed by using existing ideas as a starting point. Parts of existing ideas can be changed in many ways. They can be:

made bigger,
made smaller,
modified in color, taste, or sytle,
rearranged,
reversed,
substituted, or
combined.

Products and services are often changed to make them more attractive by using this simple technique. This method could also be used to help workers make their working situations more pleasant and efficient.

By developing and using their creativity, workers can make their jobs more interesting. The activities in this module are designed to help people develop creative thinking habits.

SESSION ONE

TOPIC: Tuning in to Creativity

OBJECTIVE: By participating in the activity Picture Completion, students will identify some of their creative potential, and become aware of ways they allow their creative ability to be blocked by themselves and others.

SURVIVAL SKILLS EMPHASIZED:

Using imagination
Knowing your strengths and weaknesses
Basic writing skills

IMPORTANCE: Some students are recognized by themselves and others as being creative (those who can write music or draw clever graffiti, etc.). Others may keep their creative ability to themselves for one reason or another. Others may deny that they have any creative ability. Students need to become aware of their creative ability. More important, students need to become aware of blocks or "stoppers" to their creativity in order to develop it to the fullest possible extent. Workers who use their creativity make their work more interesting for themselves and can become more valuable to their employers.

MATERIALS AND EQUIPMENT: Student Worksheet #1 - Picture Completion

ACTIVITY: Picture Completion

1. Hand out Student Worksheet #1 - Picture Completion. Have students draw as many objects as they can using the lines given. Make it clear that there is a time limit of ten minutes.

Note: Instructors will have a better understanding of this activity if they participate in the drawing activity rather than observe. This will help them tune in to some of their own "blocks."

2. After ten minutes, allow students ten minutes to walk around to look at other drawings.

FOLLOW-UP: 1. Discuss the following questions:

- How many different objects were drawn by the class? Why do you think different objects were drawn?
- How many objects did you notice that were the same as some of yours? Why do you think this happened?
- How many "blank" pictures were in the class? That is, how many of the "given line" sets were not used. Why do you think some students were able to complete more pictures than others?
- Did anyone in the class have an idea for a picture but not use it? Why not?
- Was this activity easy or difficult for you?
- How would you compare your drawings to the others in the class? On what basis do you make your comparison?
- Do you think you were more or less creative than your classmates in doing this activity?

2. Have the students use the backs of their worksheets in the following manner:

- Students who found the activity <u>difficult</u> are asked to complete the following sentence: "This activity would have been easier for me if . . ." Ask them to be honest and to think of as many different factors as possible that could have made the activity easier. Some possible responses are given below:

  if: . . . I were good at drawing
  . . . I had more time
  . . . I were by myself
  . . . I could have worked with a group
  . . . it wasn't such a silly activity
  . . . I could have taken it home
  . . . I had a pencil instead of a pen
  . . . a different set of lines was given

- Students who found the activity very easy are asked to complete the following statement: "This activity would have been more difficult for me if . . ." Some possible responses are given below:

  if: . . . I had to do it left-handed
  . . . I wasn't good at drawing
  . . . I had to do it with my eyes closed

- Students who found the activity about "medium" -- neither difficult nor easy -- are asked to complete both sentences.

3. Ask students to share some of their responses with the class and ask if others in the class share the ideas expressed. Individual responses may be kept anonymous by having students exchange papers.

4. Points that should be made by the teacher if they were not brought up in class discussions are:

   - Creativity does not mean the same thing to everybody.

   - People can block their own creativity or the creativity of others (for example, being afraid of what others will say about unusual ideas, criticizing new ideas).

   - The particular activity used in this session touches only one small part of creativity. In other words, if you found this activity hard, it doesn't necessarily mean you aren't creative!

5. Ask students to think of specific ways they can use their creative ability in a work situation. Some examples are:

   - Thinking of ideas for making work environments more enjoyable.

   - Thinking of ways to make products more attractive to customers.

   - Thinking of ways to train workers more effectively.

Student Worksheet #1 Picture Completion

Take ten minutes to "finish" these pictures in any way you wish. Think of and draw as many different objects as you can using the lines already given.

SESSION TWO

TOPIC: Defining Creativity

OBJECTIVE: By responding to the Creativity Questionnaire and comparing their responses to the responses of classmates, students will examine several aspects of creativity.

SURVIVAL SKILLS EMPHASIZED:

- Basic writing skills
- Imagination
- Working as a team member
- Understanding written information
- Following instructions

IMPORTANCE: Students need to examine their own ideas about creativity so that they can recognize this potential in themselves and others. Once they have recognized their creative potential, students will be encouraged to develop their creative ability and apply it to work situations.

MATERIALS AND EQUIPMENT:

- Ten to fifteen copies of Student Worksheet #2 - Creativity Questionnaire, cut into strips
- Overhead projector
- Six blank transparencies
- Pens for writing on transparencies

ACTIVITY: Creativity Questionnaire

1. Pass out Student Worksheet #2 - Creativity Questionnaire strips, one set to each student. Students are to answer each question briefly. One or two sentences for each question is sufficient. Students need not put their names on their papers. Explain that the purpose of the activity is to get their opinions about creativity and there are no right or wrong answers. Allow about ten minutes for students to complete the questionnaire.

NOTE: In a large class, the following procedure could become very difficult. Students could work in pairs or small groups, using one questionnaire per pair or group. The optimum number of questionnaires to be used in this activity is between eight and twelve.

2. Assign six students to collect the slips. Each of these students will collect all the slips for one question.

3. Assign another student as a vote-counter. Put a blank transparency on the overhead projector. Explain briefly that the class is going to determine group opinions for the responses to each of the six questions.

   - All answers to question #1 are to be read one at a time by the student who collected them.
   - Students are to raise their hands if they agree with a response.
   - Students may "vote" for as many responses to each question as they wish. (Student helpers may vote.)
   - Any response that receives votes from more than half the class is written on the blank transparency.
   - Responses that are the same or quite similar need not be written, but a star may be placed by the response each time the response is repeated.

4. This process is repeated for each question, using additional blank transparencies.

FOLLOW-UP: Go back to question #1 and ask students to agree on a concise response for each question, using a combination of the responses on the transparency. Repeat for questions 2 - 6.

NOTE: This may also be done by dividing the class into two, three, or six groups and assigning each group one or more of the questions. Each group could then report back to the class, and the class as a whole could decide (by vote and/or discussion) on the acceptability of answers.

Student Worksheet #2 Creativity Questionaire

1. In your opinion, what is a "creative person?"

---

2. Do you think that not letting a person be creative could be harmful? Explain your response.

---

3. Do you think that creativity can be used at work as well as in activities such as art, music, or dance? Explain your response.

---

4. Do you think that everybody can be creative or that only a lucky few have this ability? Give a reason for your response.

---

5. Do you think it is easy for most people to accept new and creative ideas, or would they rather stick to old ways of doing things? Explain your response.

---

6. What do you think stops people from using their creative ability?

SESSION THREE

TOPIC: Applying Creativity

OBJECTIVE: By role-playing examples for given principles of creativity, students will demonstrate their understanding of the principles of creativity.

SURVIVAL SKILLS EMPHASIZED:

- Working as a team member
- Knowing your strengths and weaknesses
- Using your imagination
- Basic speaking skills

IMPORTANCE: Creativity does not only apply to the arts. Creativity can be very useful in work situations. Any situation which involves problems which have unknown solutions is an opportunity to use creativity. In this session students are encouraged to use their own creativity and apply the principles of creativity to work situations.

MATERIALS AND EQUIPMENT:
Transparency #1 - Problems With Unknown Solutions
Transparency #2 - Questioning Ideas
Transparency #3 - Unused Ideas
Transparency #4 - Recognizing Creativity
One Role-Playing Sheet, cut into strips
Overhead projector

ACTIVITY: Principles of Creativity

1. Using Transparencies #1 through #4, discuss the four principles of creativity illustrated. The following ideas and examples may be used in the discussion:

   - (Transparency #1) Creativity applies to almost any situation in which there are problems with unknown solutions, no matter how large or small the problems are. Although creativity is commonly associated with art, music, and science, many everyday problems at home and at work require creativity. For example,

readers of newspaper columns like "Hints from Heloise" show creativity in their ideas for solving small household problems.

- (Transparency #2) Creative thinking may mean questioning ideas that many people automatically accept or disagreeing with commonly accepted ways of doing things. For example, for many years people thought that the sun revolved around the earth. The astronomer who discovered that the earth actually revolves around the sun had difficulty convincing others of this new fact.

- (Transparency #3) Many creative ideas go unspoken and unused even though they may be useful. For example, some people do not express their ideas because they are afraid that others will laugh at what they say. Other people discover that their ideas are simply not wanted, so they keep them to themselves.

- (Transparency #4) Most people are creative in one way or another. However, many people believe that they are not creative. These people are either not using what creativity they have, or they do not recognize situations in which they are creative. For example, students who have the ability to draw are usually considered creative, while students who can repair engines may not be considered creative. Actually, many problems involved in repairing engines require a creative approach.

2. Divide the class into four groups. Assign each group one of the four principles of creativity by giving the students one of the strips from the Role-Playing Sheet. Give students about ten minutes to develop a work-related role-playing situation to illustrate one of the principles of creativity.

   While students should be encouraged to develop their own role-playing situation, the following examples can be used as suggestions if a group has problems thinking of a situation. The numbers below correspond to the number of the transparency on which the principle was illustrated.

   (1) A clothing store has suffered an unexpected drop in sales. The sales manager and sales personnel discuss ways of handling the problem.

(2) During a staff meeting, a worker suggests that all workers could be allowed to set their own work schedules. He/she would rather work four hours in the morning and four hours in the evening instead of the normal working day.

(3) A window designer is preparing a display for the Christmas shopping season. A salesperson who is casually observing suddenly thinks of a good display idea. The salesperson talks to a co-worker about the idea. The co-worker likes the idea and suggests sharing it with the designer. The salesperson who thought of the idea refuses to share the idea because he/she is afraid the designer will think the idea is silly.

(4) A supervisor compliments an office worker for an idea to cut down paper work. The idea will save the department time and money. The same office worker claims not to be creative when asked to assist with holiday decorations for the office.

3. Have the groups act out their situations and explain how each situation illustrates one of the principles of creativity.

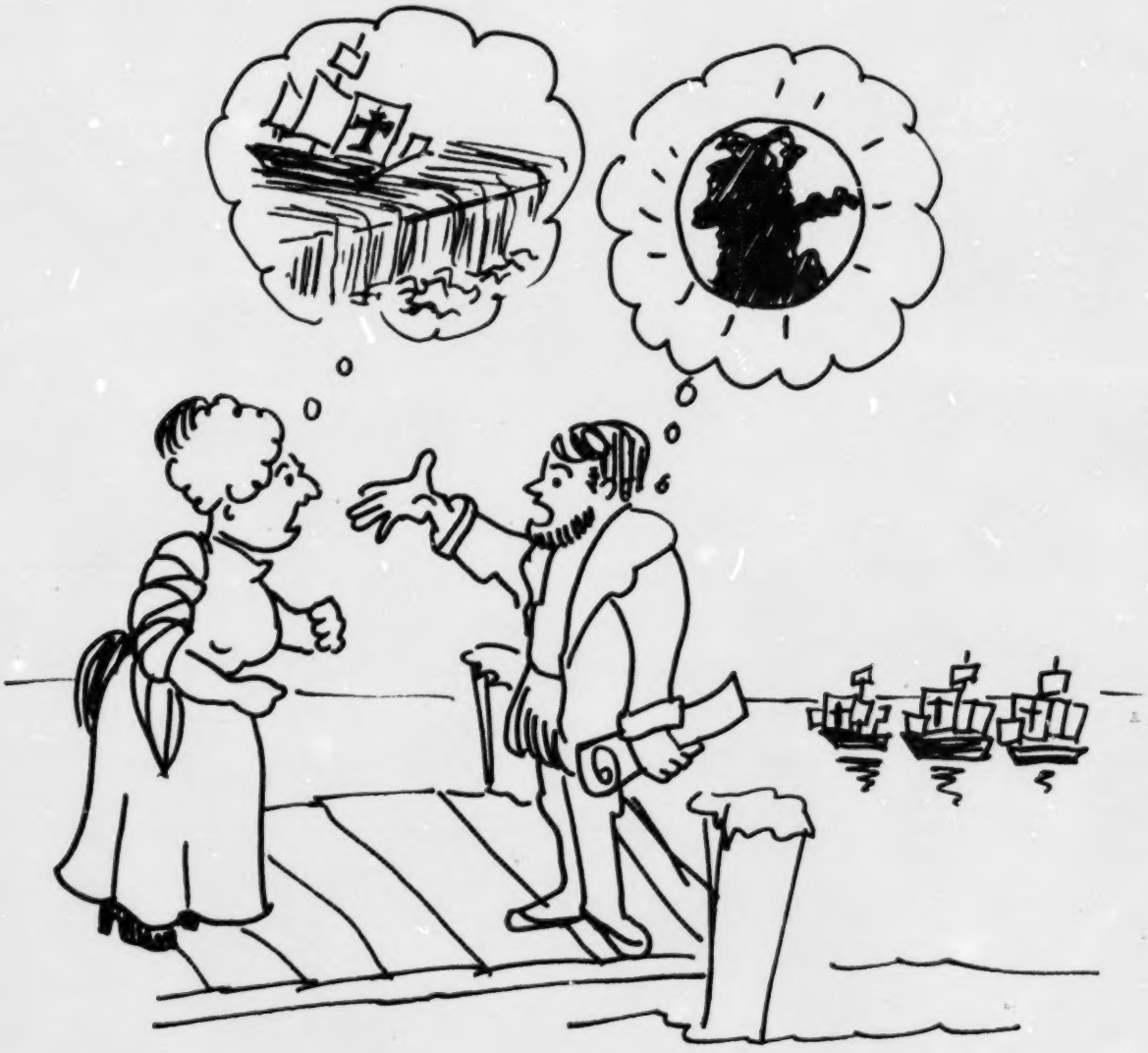
FOLLOW-UP: Explain that students had an opportunity to use their creativity while developing their role-playing situations. Discuss the experience, using the following questions:

- In what ways do you think the groups used creativity in carrying out their role-playing assignments?
- Did you notice any "blocking" of creativity during the activity?
- Were you afraid to share your ideas?
- Did other students ignore or laugh at your ideas?
- Did you ignore or laugh at the ideas of others?
- How can people encourage others to be creative?
- Do you believe that you, as an individual, were creative during this activity? Why or why not?
- How could you have been more creative during the activity?

Transparency #1 Problems with Unknown Solutions

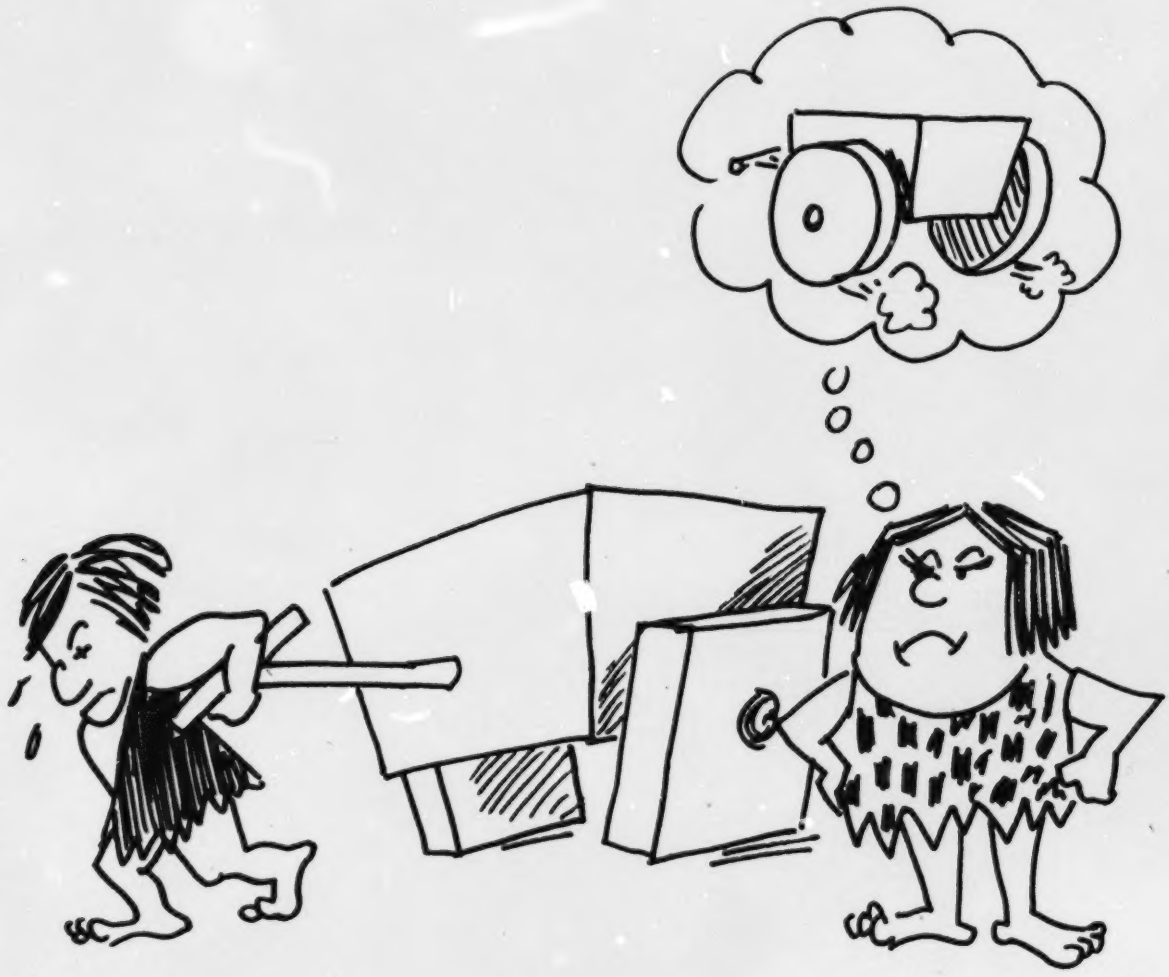
Creativity applies to almost any situation in which there are problems with unknown solutions, no matter how large or small the problems are.

Transparency #2 Questioning Ideas



Creative thinking may mean questioning ideas that many people automatically accept or disagreeing with commonly accepted ways of doing things.

Transparency #3 Unused Ideas



Many creative ideas go unspoken and unused even though they may be useful.

Transparency #4 Recognizing Creativity

Most people are creative in one way or another. However, many people believe that they are not creative. These people are either not using what creativity they have, or they do not recognize situations in which they <u>are</u> creative.

Role Playing

Role Playing Situation #1

Creativity applies to almost any situation in which there are problems with unknown solutions, no matter how large or small the problems are. Although creativity is commonly associated with art, music, and science, many everyday problems at home and at work require creativity.

Think of a work related problem. Then think of one or more creative ways of solving the problem. You will be asked to demonstrate the problem and how you decided it could be solved by acting out a situation for the class.

Role Playing Situation #2

Creative thinking may mean questioning ideas that many people automatically accept or disagreeing with commonly accepted ways of doing things.

Think of a work situation in which a creative worker questions accepted ideas or ways of doing things. What might be the results of thinking in this way? You will be asked to demonstrate this situation by acting it out for the class.

Role Playing Situation #3

Many creative ideas go unspoken and unused even though they may be useful.

Think of different reasons why a worker might not express a creative idea. What might be the possible results of expressing a creative idea? You will be asked to demonstrate some possible reasons why people do not express their creative ideas by acting out a situation for the class.

Role Playing Situation #4

Most people are creative in one way or another. However, many people believe that they are not creative. These people are either not using what creativity they have, or they do not recognize situations in which they <u>are</u> creative.

Think of a work situation in which a worker might not recognize that he or she is being creative. You will be asked to demonstrate this situation for the class by acting it out.

SESSION FOUR

TOPIC: Creativity Self Evaluation

OBJECTIVE: By responding to and discussing a questionnaire on creative potential, students will have the opportunity to become aware of their own creative potential.

SURVIVAL SKILLS EMPHASIZED:

- Using imagination
- Knowing your strengths and weaknesses
- Understanding written information
- Basic arithmetic skills

IMPORTANCE: In order to develop their creative ability, students need an opportunity to assess their own creative behavior. They can then begin to practice creative thinking.

MATERIALS AND EQUIPMENT:
Student Handout #1 - Three Descriptions*
Student Worksheet #3 - Your Creative Potential*
Overhead projector

ACTIVITY: Creativity Self Evaluation

1. Distribute Student Handout #1 - Three Descriptions.
2. Have students read the three descriptions and decide which one best describes them.
3. Distribute Student Worksheet #3 - Your Creative Potential.
4. Explain to students that the worksheet is designed to help them assess their creative potential.
5. Read the directions to students. Have them complete the worksheet.

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* Reproduced with permission from Self Encounter by Lawrence Smalheiser, Price, Stern, and Sloan Publishers, Inc. Los Angeles, 1973.

FOLLOW-UP:

1. Use the following scoring key to help students score their worksheets. Read the score for each response to each question. Instruct students to write the number of points they scored for their responses beside each statement on the worksheet. For example, if a student checked "Uncertain" for statement A, the student should write "1" beside the statement.

	TRUE	FALSE	UNCERTAIN
A	2	0	1
B	2	0	1
C	0	3	1
D	0	2	1
E	0	3	1
F	3	0	1
G	0	3	1
H	0	3	1
I	2	0	1
J	3	0	1
K	2	0	1
L	3	0	1
M	2	0	1
N	3	0	1
O	0	2	1

2. After all statements have been scored, have students add up the points for all statements.

3. Have students refer to Student Handout #1. Tell them that they may interpret their scores as follows:

   - Description I applies to persons who scored 23 points or more.
   - Description II applies to persons who scored between 11 and 22 points.
   - Description III applies to persons who scored 10 points or less.

4. Use the following questions to discuss the results of the scoring.

   - Were you surprised at the results of the scoring? Why or why not?
   - What do you like about the description that resulted from scoring the worksheet?

- What about the description would you like to change or improve?
- In what ways are the descriptions similar? In what ways are they different?
- What advantages might a person of each description have on a job? Disadvantages?

Student Handout #1 Three Descriptions

Below are descriptions of three different types of people. Read all three descriptions carefully. Mark an "X" in the box beside the description you believe most closely describes you.

Description I

☐ You are not bound by ordinary ways of thinking. You can develop and recognize original and unusual ideas. Your curiosity may also encourage you to combine ideas in new ways. You are willing to experiment even when you are not sure your work will be rewarded. Because you seldom depend on others, you can provide yourself with the time, energy and isolation that are necessary for creative activities. You are not likely to be distracted or discouraged by others once you become interested in a challenging task.

Description II

☐ You can recognize and appreciate a creative idea, although you usually do not produce these ideas by yourself. You probably engage in creative activities which involve using your hands or which involve objects you can see and touch. You start creative projects sometimes, but you may lose patience and interest when a project requires you to work for a long time by yourself.

Description III

☐ You are usually more interested in practical down-to-earth matters than in chasing dreams. Since you tend to be very realistic in your thinking, you may not be alert to unusual ideas that are necessary for creative problem solving. Because you prefer to work with other people, you rarely set aside time to work by yourself on your ideas. You are more likely to engage in activities which give you immediate results and which may be shared with others.

Student Worksheet #3 Your Creative Potential

Respond to each of the following statements by checking one of the boxes to the left of the statement. This is not a test. Think carefully about each statement before responding.

	True	False	Uncertain	
A	☐	☐	☐	My ideas are not always easy to explain to others.
B	☐	☐	☐	I would rather work at discovering new facts than teaching others.
C	☐	☐	☐	I don't like to waste time and energy on ideas that may not work out.
D	☐	☐	☐	I find it easier to express ideas than to think of new ideas.
E	☐	☐	☐	I prefer quick solutions to problems rather than dealing with uncertainty.
F	☐	☐	☐	My way of thinking about things is often considered different or unusual.
G	☐	☐	☐	I find it easy to interrupt a project when friends call or visit.
H	☐	☐	☐	I feel more comfortable with facts than with theories.
I	☐	☐	☐	I would rather be good at making up stories than good at telling them.
J	☐	☐	☐	I have difficulty giving up my ideas just to please others.
K	☐	☐	☐	I would rather design clothes than model clothes.
L	☐	☐	☐	I prefer to work on ideas by myself rather than with others.
M	☐	☐	☐	Unusual things appeal to me more than ordinary things.
N	☐	☐	☐	When I get an idea, I work on it, even when others think it "far out" and impractical.
O	☐	☐	☐	I would follow up on my ideas if it didn't mean being alone so much.

SESSION FIVE

TOPIC: Awareness and Creativity

OBJECTIVE: By concentrating on sights and sounds in their environment, students will gain an awareness of how they limit their sensations and their creativity.

SURVIVAL SKILLS EMPHASIZED:

- Working as a team member
- Using imagination
- Working without close supervision
- Managing time and materials efficiently
- Basic writing skills

IMPORTANCE: People learn to focus their attention by shutting out some sensations, resulting in a kind of tunnel vision or tunnel perception. This is necessary in order to concentrate on one thing at a time and to eliminate distractions. Shutting out sensations can also interfere with the creative process by limiting awareness of different options. The following activities are aimed at increasing students' understanding of the limits they can put on their awareness and on their creativity.

MATERIALS AND EQUIPMENT: A stopwatch or a watch with a second hand.

Several common objects such as a table, chair, book, pen, etc. They must be objects that can be manipulated by students.

ACTIVITY: The "Tunnel Vision" Experiment (optional)

1. Ask students to participate in a simple experiment. Each will need an ordinary sheet of notebook paper. Students are to roll the sheet of paper into a "telescope" about one inch in diameter and look steadily for a few seconds at some large object in

the room that the teacher indicates. They should then look at the object without the use of the "telescope". Ask them to compare what they see using the "telescope" to what they see without it. It may be helpful to switch back and forth several times. Ask students to compare their experiences. These questions may facilitate discussion:

- Were you able to see the whole object with the "telescope"? Without it?
- Were you able to see surrounding objects using the "telescope"? Without it?
- What difference did the surroundings make to your view of the object?
- If you had not already known what the object was, do you think you could have figured out what it was with the use of the "telescope"?

2. Explain that this experiment demonstrates one of the common "blocks" or "stoppers" to creativity. Without realizing that we are closing ourselves off from a big part of the world, it is easy to get into a habit of automatically blocking out ideas and parts of our environment and actually disregarding this "food" for creativity.

3. In work situations, people sometimes develop "tunnel vision". For example, people may consider only their own jobs or departments and ignore the problems and jobs of others. Use the following questions to conclude the discussion:

- What kind of jobs are most likely to encourage/ discourage tunnel vision?
- Do you think that tunnel vision is more likely to occur in large or small organizations? Why?
- What can employees do to avoid getting tunnel vision in their jobs?
- What can employers do to help employees avoid tunnel vision in their jobs?

ACTIVITY: Stop, Look, Listen

1. This activity gives students a chance to expand their awareness by focusing on their senses of sight and hearing. It also gives students a chance to become aware of how they "block" their awareness.

   NOTE: It is suggested that the teacher participate in the following activities in order to tune in to students' experiences.

2. Students are asked to write down everything they see for three minutes. Before they begin, explain to students that they are free to move about the room if they wish.

FOLLOW-UP:

1. Did any students "run out of things" to write down, while others were writing continuously?

2. How could students have increased the number of things they saw during the experiment?

   - Some ideas:

     a. get up and walk around

     b. move things to see behind or under them

     c. pay attention to details (for example, instead of writing that you see Ken, write that you see Ken's red shirt, Ken's blue pants, etc.)

     d. leave the room

     e. open window shades

   - You may wish to point out that actions such as walking around and leaving the room are not usually considered appropriate in the classroom. In many situations, behavior may be limited by various rules. Creative ideas sometimes conflict with rules. Therefore, we must be aware of rules when carrying out creative ideas.

3. If students had trouble writing down more than five or six things (it is easily possible to write continuously for a three minute period on what one sees in any but the most barren situation) suggest that they try looking at things as if they were strangers from outer space or as if they were seeing the scene for the first time. This technique can be used in the next activity.

ACTIVITY: Stop, Look, Listen (continued)

The procedure is exactly the same, except this time students are asked to write down <u>everything</u> they <u>hear</u> for three minutes. This is usually somewhat more difficult, so remind students to listen for and write down sounds they usually ignore.

FOLLOW-UP:

1. Which of the sounds you wrote down are ones that you usually ignore or shut out?

2. How could students have increased the number of things they heard?

   - <u>Some ideas</u>:

     a. open window to let in outside noises

     b. make noises

3. Ask the student with the longest list of sounds to quickly read the items on the list to the class. Did other students hear any of the things on the list but not write them down? Why do you think this happened? What additional sounds could be added to the list?

4. Is it possible to "turn on" and "turn off" our awareness? In what work situations is it important to "turn off" awareness? to "turn on" awareness? Some examples are:

   - When trying to solve a math problem, "turning off" awareness helps us concentrate on the problem.

   - When looking for safety or health hazards, we should "turn on" our awareness to avoid overlooking hazards.

ACTIVITY: "Martian Thinking"

1. Explain that sometimes ideas and things we take for granted hide many creative ideas. For instance, if students were asked what a certain object is, they would probably say "a table". If they were asked what it can be used for, students might answer "for writing on" or "for eating on", or other familiar uses. Ask students to think of reasons why.

2. Ask students to imagine they had never seen a table before. Suppose they came into a room containing twenty tables in different positions - on legs, on side, on end, with top leaning against the wall, etc. Not knowing what a table is for and how it is "supposed to be" placed, people could probably think of dozens of new and unusual uses for a table.

3. Divide the class into groups of about three or four, and assign each group an object. Students may manipulate the object in any way that does not break it. They are to think of as many new and unusual uses of the object as possible in ten minutes.

4. At the end of ten minutes, ask each group to demonstrate two or three of the most creative uses they developed for their object.

NOTE: Most students will go about this activity with a considerable amount of humor. Although it is not absolutely essential, humor is often present during the creative experience. Students should be encouraged to use their sense of humor during this activity.

FOLLOW-UP: Ask the class to answer the following questions:

- In what ways do you think your group used creativity during this activity?
- What did you learn about creativity during this activity?
- Did you feel free to express all your ideas during this activity?
- Did you feel silly doing this activity?
- Were you afraid of what others would say about your ideas?
- Did your ideas flow more easily after you got started?
- How did you block your own creativity?
- How can you help yourself to get "unblocked"?
- How can you use Martian Thinking in work situations? (For example, using tools in an unusual way, advertising, etc.)

SESSION SIX

TOPIC: Brainstorming - A Creative Technique

OBJECTIVE: After learning the rules of brainstorming, students will practice applying the brainstorming technique to a problem situation.

SURVIVAL SKILLS EMPHASIZED:

- Working as a team member
- Basic writing skills
- Using imagination
- Adjusting to work situations
- Managing time efficiently

IMPORTANCE: Brainstorming is a useful tool for developing creativity. Brainstorming calls for "pulling out all the stops" during the idea formulation stage of creativity. Many times workers face problems on the job, for which there appear to be no solutions. By using the brainstorming technique, potential solutions which seem improbable at first may be explored, leading to a solution of the problem.

MATERIALS AND EQUIPMENT:

- Transparency #5 - No Criticizing
- Transparency #6 - Use Imagination
- Transparency #7 - Think Quantity
- Transparency #8 - Combine and Improve Ideas
- Student Worksheet #4 - Brainstorming cut into three strips along the dotted lines
- Transparency #9 - Guidelines for Brainstorming
- Overhead projector

ACTIVITY: Brainstorming

1. Explain to students that brainstorming is a technique for generating a large number of ideas.

2. Many people block their own creativity by either:

   - Deciding whether an idea is good or bad almost as soon as they think of it

- criticizing their ideas before they have a chance to develop them fully, or

- automatically forgetting about ideas that seem "far out".

3. Brainstorming may be used by one person or by a group. Use Transparencies #5 through #8 to explain the four guidelines for brainstorming.

   - Transparency #5 - No Criticizing. All ideas are written down before any discussion, judgments, or criticism is allowed.

   - Transparency #6 - Use Imagination. Let your imagination go. Don't censor your ideas. Write down even your "far out" ideas. It is easier to tame down your ideas than to jazz them up.

   - Transparency #7 - Think Quantity. During brainstorming, just think of as many ideas as you can. Don't worry about whether your ideas are practical. For the time being, quantity is more important than quality. The more ideas you think of, the more likely you will end up with some good ones.

   - Transparency #8 - Combine and Improve Ideas. Putting two or more ideas together is fair play and is encouraged. In group brainstorming, group members may use their creativity to improve ideas of others. Just make sure that you are improving and not criticizing.

4. Hand out the first strips of Student Worksheet #4 - Brainstorming, and read through the instructions with the students. Have students apply the four basic guidelines while brainstorming for 3 minutes. Project Transparency #9 - Guidelines for Brainstorming as a reminder of the brainstorming guidelines.

   NOTE: Instructors are encouraged to participate in this activity with students or try it in advance.

5. After three minutes, ask the students the following questions:

   - Was this activity easy for you? Why or why not?

   - Which of the brainstorming guidelines was most difficult to follow? Why?

- Were you critical of your own ideas? Why?

- Did you try to write down only ideas you thought were good instead of writing all your ideas? Why?

6. Divide the class into pairs.

   - Hand out the second strips of Student Worksheet #4 - (Brainstorming with a Partner).

   - Go over instructions briefly with students. Encourage them to use their ideas from Student Worksheet #4 in any way they wish, although they are not limited to these ideas!

   - Students are to work in pairs, not as individuals.

   - Three minutes are allowed for this brainstorming session.

   - Remind students of the guidelines for brainstorming.

7. After three minutes, ask the students the following questions:

   - Was it easier or more difficult to work in pairs than by yourself? Why?

   - Which guidelines gave you the most trouble? Can you think of a way to overcome this difficulty?

   - Were you critical of your partner's ideas? Why? Did you feel that he or she was critical of yours? What was your reaction to criticism?

   - Were you able to combine and improve each other's ideas? Have students give examples.

8. Divide the class into groups of four or five students each.

   - Pass out the third strips of Student Worksheet #4 (Brainstorming for Better Work Situations).

   - Give students three minutes to brainstorm.

   - Ask students to make a special effort to follow the guidelines for brainstorming discussed earlier. Use Transparencey #9 as a reminder.

FOLLOW-UP: Ask the class the follwing questions:

- Was it easier to think of ideas by working in a group rather than alone or in pairs? Which did you prefer? Why?
- Was it difficult to avoid criticizing your own ideas before sharing them with the group?
- Were you critical of other group members' ideas? Did you feel others were critical of your ideas?
- Do you think members of your group used imagination in their ideas?
- Did the ideas of others help you think of ideas, or did you find their ideas distracting?
- Were you able to improve on somebody else's ideas? If so, did that person feel criticized? How can you tell the difference between an improvement and a criticism?
- How can brainstorming be used in work situations? What are some examples?

Transparency #5 No Criticizing

Write all ideas down before you start to judge or citicize them.

Transparency #6 Use Imagination

Let your imagination go. Write down even your far out ideas. It is easier to tame down your ideas later than to jazz them up.

Transparency #7 Think Quantity

Think of as many ideas as you can. Don't worry about whether they are practical. For the time being, quantity is more important than quality. The more ideas you think of, the more likely it is that you will come up with some good ones.

Transparency #8 Combine and Improve Ideas

Putting two or more ideas together is fair play, and is encouraged. Also in group brainstorming, group members may use their creativity to improve ideas of others. (Just make sure that you are <u>improving</u> and not criticizing!)

Student Worksheet #4 Brainstorming

BRAINSTORMING

Suppose you are working for Ace Toothpick Manufacturers, Inc. Lately sales have been down, and you have been asked to work on a campaign to get people to use more toothpicks. Your boss has asked you to make up a list of possible new uses for toothpicks. Write your ideas below. Use your imagination!

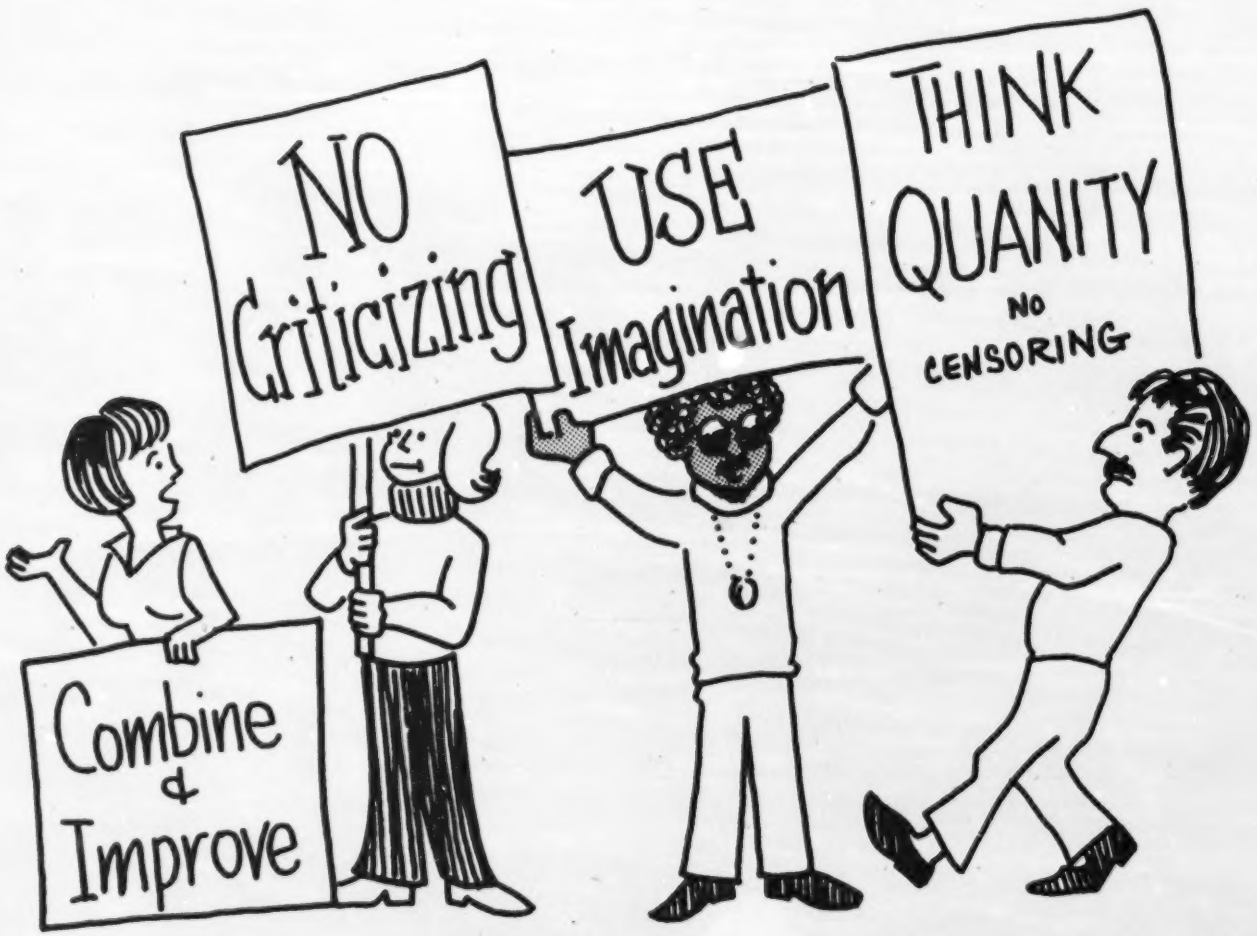
BRAINSTORMING WITH A PARTNER

You and a co-worker have been assigned the task of launching an advertising campaign to get people to use more toothpicks. So far each of you has developed a list of possible new uses for toothpicks. Your assignment is to develop slogans to be used in an advertising campaign to get people to use toothpicks in new ways. Write possible slogans below. (Examples of common advertising slogans: "Things go better with Coke," "You meet the nicest people on a Honda.")

BRAINSTORMING FOR BETTER WORK SITUATIONS

Using the brainstorming technique, list as many ideas as you can for making work situations more comfortable and enjoyable. Remember, don't judge any of your ideas right now. Just write down all ideas that come to your mind.

Transparency #9 Guidelines for Brainstorming



SESSION SEVEN

TOPIC: Creativity in Work Situations

OBJECTIVE: By thinking of ways to change an existing object, students will learn to apply one technique for developing their creative ability.

SURVIVAL SKILLS EMPHASIZED:
- Using imagination
- Managing materials efficiently

IMPORTANCE: One way to help students develop their creative ability is to begin with existing ideas. These ideas may be changed in various ways to produce new and original ideas. The technique of changing existing ideas has many useful applications in work situations.

MATERIALS AND EQUIPMENT: Student Worksheet #5 - New Ideas from Old

ACTIVITY: Developing New Ideas from Old Ideas

1. Discuss the technique of changing existing ideas in order to develop new and original ideas.
   - Existing ideas give us a starting point.
   - By changing one or more parts of an idea, we can develop useful new ideas.
2. Discuss the following ways of changing an idea. Have students give examples of each.
   - Make it bigger or add new parts. Two examples are "giant economy sizes" of products and increasing the size of a business to include more products or to serve a larger area.

- Make it smaller or eliminate parts. Examples are transistor radios, pocket calculators, and microfilm.

- Modify parts or ideas. Examples are changing colors, tastes, odors and styles. Soaps are often changed in their color and odor. Automobile styles are changed yearly.

- Rearrange parts. Some examples of rearranging parts are in designing buildings, parks, and machines.

- Reverse parts. One example of reversing parts is in automobiles in which the trunk and the engine are simply reversed in location. Another example is reversing roles of persons, such as a husband assuming homemaking responsbilities while a wife assumes the role of breadwinner.

- Substitute different materials, parts, or methods. A common example is the substitution of plastic for wood and metal. Another example is the substitution of an electric motor for an internal combustion engine in a car.

- Combine parts or ideas. One example is the "home entertainment unit," which combines a television, radio, tape player, and record player. Another example is the motor home, which combines a home with a vehicle.

3. Distribute Student Worksheet #5 - New Ideas from Old and have students complete the worksheet.

FOLLOW-UP:

1. Ask all students to share their ideas. Have them explain how their ideas can be useful in working situations.

2. Ask the class to consider combining two or more ideas of individual students.

3. Emphasize that the technique used in this activity can be used to develop new ideas and processes as well as new objects.

4. If time permits, have students apply the same technique to a service instead of an object.

- Have students imagine that the class has decided to form a company to offer a service (for example, lawn mowing or dog walking).

- Working as a group, have the students use the same technique they used on the worksheet to develop a creative approach which would attract customers.

Student Worksheet #5 New Ideas from Old

1. Think of an object used or produced in a work situation. Write the name of the object in the blank below:

   _____

2. Name the basic parts of the object.

3. How could the object or part of the object:

   - Be made bigger?
   - Be made smaller?
   - Be modified?

4. How could the parts of the object:

   - Be rearranged?
   - Be reversed?
   - Be substituted or made of a different material?

5. How can you combine your ideas above?

6. How could your ideas be useful to workers?

Resources for Teachers

BOOKS, ARTICLES, AND ACTIVITIES

Ellis, William D., "Your Hunches May Be Your Future," *Reader's Digest*, March 1973, pp. 199-202.

Explains how workers have used on-the-job creativity to benefit themselves and their organizations. Contains suggestions for developing creative ideas in work situations.

Gade, Dolores, *Teaching Packet for New Dimensions in Creativity*, Home Economics Education Association, University of Wyoming, 1974.

Contained in a loose-leaf binder, this Teaching Packet is divided into two major parts. The first section is for the teacher's use. It explains the approach to creativity used in the materials, and discusses the importance of creativity. It provides suggestions for lesson outlines, a narration, and materials specified for certain class activities. Other suggested activities and solutions to student exercises are also in the teacher's section. The second section contains worksheets that can be duplicated for each student. Five learning packets cover material entitled (1) unexplored territory, (2) is your creativity showing, (3) blocks to creativity, (4) thinking in new dimensions, and (5) ready for action.

Gibb, C. Glenadine, *Creative Problem Solving*, Texas University Research and Development Center for Teacher Education, Austin, Texas, 1970.

Contains three modules designed to teach creative problem solving. The modules are entitled (1) application of deferred judgment, (2) recognizing the real problem, and (3) developing the solution. Instructor's guides for all modules are included with the student workbook for the third module. For each module goals are stated, operational objectives are defined, and teaching procedures are outlined in terms of desired learning outcomes, instructor behavior, and student behavior. Students are given practice in problem redefinition, brainstorming, generating and evaluating solutions, and overcoming mental sets.

How to Use Your Imagination--The A B C's of Creative Problem Solving, a Scriptographic Booklet, Channing L. Bete Co., Inc., Greenfield, Mass., 1977.

One of a series of six illustrated booklets for use in values education. Emphasizes the need for imagination when solving problems, and outlines the step-by-step process of problem solving.

Parnes, Sidney J., *Creative Behavior Guidebook*, Charles Scribner's Sons, New York, 1967, 311 p.

A book designed for the educator or administrator who wants to delve into the whys and hows of nurturing creative talent, at the adult, college, and high school levels. Divided into two parts entitled (1) philosophy and

psychology of creative behavior, and (2) an instructional program for cultivating creative behavior. Designed to be accompanied by the *Creative Behavior Workbook*.

_____, *Creative Behavior Workbook*, Charles Scribner's Sons, New York, 1967. 169 p.

A workbook designed for use along with the *Creative Behavior Guidebook*. The workbook aims to give the student a clearer understanding of how to tackle a problem creatively, as well as an appreciation of some of the rewards for creative effort. Includes sixteen sessions that emphasize the practical application of creative processes. Also includes supplementary exercises for further practice and review.

AUDIO VISUAL RESOURCES

Koestler on Creativity, available from the Audio Visual Service, University of Illinois, Urbana, IL 61801. Request film number 90147. (41 minutes)

A view of Arthur Koestler and a review of his theory of creativity as expressed in his book, *The Act of Creation*. A valuable historical perspective on the elements common to discovery in science and to creation in art, as well as of some aspects of aesthetic theory. Narrated in part by Koestler. A 1971 production.